1847MNRAS...7..268C

Perihelion Passage, 1847, July 22·261, G.M.T.

Longitude of Perihelion ...	116° 27′
Ascending Node	171 25
Inclination	84 45
Log. least distance	0·29825.

Motion retrograde.

Extract of a Letter from Professor Schumacher.[*]

"I have received to-day a very interesting letter from M. Le Verrier. The star observed by Lalande on May 10, 1795, is undoubtedly the planet (*Neptune*). On consulting the original MSS. it appears that he observed the planet on May 10, *and also on May* 8; but in printing the *Histoire Céleste*, these two observations, supposed to be of the same fixed star, were found discordant. Hence the observation of May 8 *was not printed at all*, and to that of May 10 were affixed the two points, signifying doubt, *which are not* in the MSS. The MSS. observations stand thus:"[†]—

		Middle Wire.	Third Wire.	Zenith Distance.
		h m s	h m s	° ′ ″
May 8	7·8	14 11 24	....	59 54 40
	Planet	11 36·5	....	60 8 17
10	Planet	11 23·5	....	60 7 19
	7·8	....	14 11 50·5	59 54 40

Observations of Neptune since its Reappearance.

Cambridge. Northumberland Equatoreal. (Prof. Challis.)

		Greenwich M. T.	Right Ascension.	N.P.D.
		h m s	h m s	° ′ ″
1847.	May 6	15 13 49	22 9 53·40	101 55 53·1
	11	15 24 11	22 10 9·03	101 54 38·0

"*Neptune* was compared with a star in Bessel's Zones, 127, 129, R.A. = $22^h\ 15^m\ 11^s$, and Bessel's place was employed. On May 6th, the observation was difficult from twilight and unfavourable atmosphere."

Extract of a Letter from Mr. Adams, with new Elements of NEPTUNE.

"The following elements of *Neptune* have been obtained by taking into account Professor Challis's Observations made since the reappearance. * * * The elements are now sufficiently correct to enable me to approximate to the perturbations of *Neptune* by the action of *Uranus*, in order to compare more accurately the

---

[*] Professor Schumacher is recovering satisfactorily from his long and serious illness.

[†] The mean places of the star for 1800, by Schumacher's Tables, are

R.A.	14h 12m 0s·83	N.P.D.	101° 8′ 19″·4
	11 59·81		8 17·8

There is probably an error of 1s in one of the observed R. Ascensions.

Downloaded from http://mnras.oxfordjournals.org/ at University of British Columbia on June 24, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System

1847MNRAS...7..269A

ancient observations of 1795 with those....made recently. I have used the old observations, supposing the elements not to have changed. I hope immediately to set about a new solution of the perturbations of *Uranus*, starting with a very approximate value of the mean distance. * * * I do not think with Professor Pierce, that the near commensurability of the mean motions will interfere seriously with the results obtained by the treatment of perturbations; but it will be interesting to see how nearly the real elements can be obtained by means of the perturbations."

Elements of the Orbit of Neptune.

Mean Longitude, Jan. 1, 1847, G.M.T.	328° 13′ 54″·5	M. Eq. 1847·0
Longitude of Perihelion (on the Orbit)	11 13 41·5	
—— Ascending Node	130 5 39·0	
Inclination to Ecliptic	1 47 1·5	
Mean Daily Motion	21·3774	
Semi-axis Major	30·2026	
Eccentricity of Orbit	0·0083835	

On the communication of Mr. Adams' paper, the Astronomer Royal gave orally a continuation of the history of *Neptune*, embracing the principal points that have been ascertained since his communication of Nov. 14, 1846. The planet having been actually discovered in the heavens by means of certain predicted elements, the fair presumption was that those elements were very approximately correct. Adopting these elements, therefore, Mr. Hind examined La Lande's and other observations, with the hope of finding some former observation of the planet as a star now missing; but satisfied himself that there was none. In the meantime, the continuation of the observations of the planet in the last months of 1846, and the comparison of them with Professor Challis's early observations of August, led to some unexpected conclusions. It was found that, though one *place* of the planet might be very well represented by M. Le Verrier's or Mr. Adams' elements, yet the apparent *movement* of the planet could not be represented within several minutes. Elements were then investigated from the observations themselves (without any reference to the preceding deductions from the perturbations of *Uranus*), by Mr. Adams in England, (see *Monthly Notices*, for March, p. 244) and by Professor Pierce and Mr. Sears C. Walker in America. Attention is particularly due to the former of these investigations, in which are exhibited, not only the results for the different elements, but also for the probable error of each. The most important conclusion was, that the planet certainly moved in a much smaller orbit, and probably in an orbit of much smaller eccentricity, than that indicated by the calculations of perturbation. With elements thus roughly corrected, the orbit was again traced back through the ancient observations, and it was

Downloaded from http://mnras.oxfordjournals.org/ at University of British Columbia on June 24, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System